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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/562,140

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Yoshifumi Adachi

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HARNESSE, DICKEY & PIERCE, P.L.C.
P.O. BOX 8910
RESTON, VA 20195

EXAMINER

REDDY, KARUNA P

ART UNIT

PAPER NUMBER

1713

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/14/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/562,140

Applicant(s)

ADACHI ET AL.

Examiner

Karuna P. Reddy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12/23/2005, 5/22/2006
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____
- ☐ Notice of Informal Patent Application
- ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "vicinity of a surface of the water absorbent resin....." in claims 1-2 and 7-9 is a relative term which renders the claim indefinite. The term "vicinity of a surface" is not defined by the claim and the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention.

Claims 3-6 and 10-21 are dependent on base claims 1 and 7-9.

Claim Rejections - 35 USC § 102/103

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-4 and 7-21 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mertens et al (US 6,605,673 B1 – WIPO publication WO 00/53644 is used for date purposes and the US equivalent is referred to in the rejection below).

Mertens et al disclose a powdery crosslinked polymer constituted of 55 to 99.99 wt% of polymerized ethylenically unsaturated monomers which contain acid groups; 0.1 to 5.0 wt% of one or more polymerized crosslinking agents and 0 to 30 wt% of a water soluble polymer. The crosslinked polymer so obtained is subjected to secondary crosslinking at its surface by polyol and a cation (column 3, lines 30-53). The particle size is preferably between 150 to 800 μm (column 6, lines 46-49).

The water absorbing polymer product to be surface crosslinked is obtained by polymerizing 55 to 99.99 wt% of a monounsaturated monomer having acid groups, where monomers containing carboxyl groups are preferred. Particularly preferred is a polymer product obtained by polymerization in the presence of crosslinkers of acrylic acid or methacrylic acid (column 4, lines 65-67; column 5, lines 1-11). Aqueous solutions of salts are preferably used as cation to crosslink carboxylate groups near the surface. Examples of polyvalent cations are cations of aluminum, iron, chromium and other transition metals. It is preferred to use aluminum salts and alums and their various hydrates (column 4, lines 42-61).

See example 1 for the retention (TB) and absorption under pressure (AAP) for a 0.9% saline solution of 28.5 g/g and 25 g/g respectively. Furthermore, 0.5 g of aluminum sulfate 14-hydrate is used relative to 100 g of polymer powder and 2.5 g of water is used to make the crosslinker solution. Depending on the solubility of both components i.e. polyol and cation, the solution is heated to 20 to 100°C, preferably 20 to 60°C. Separate, yet simultaneous metering of a solution of the polyol and a solution of the salt component is also possible if homogeneous distribution of both components is ensured and the material is subjected to a thermal subsequent treatment. (column 7, lines 19-26). Once the secondary crosslinker solution is mixed with the polymer particles, secondary crosslinking reaction is performed at temperatures ranging from 150°C to 300°C (column 7, lines 41-44).

The prior art is silent with respect to properties of water resin particle and the composition i.e. average particle diameter of 300 to 500 µm and extraction rate of multivalent metal component of **claim 1**; standard deviation of **claims 1 and 8**; moisture absorption blocking ratio of **claim 3**, diffusion absorbency under load of **claim 4** and humidification blocking ratio of **claim 9**.

However, in light of the fact that prior art teaches / discloses essentially the same composition and process as that of the claimed, one of ordinary skill in the art would have a reasonable basis to believe that the water absorbent resin composition of prior art exhibits essentially the same property(ies). Since PTO cannot conduct experiments, the burden of proof is shifted to the applicants to

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establish an unobviousness difference. See *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (CCPA 1980).

Even if properties of the water absorbent resin particle and composition of instant claims and prior art examples are not the same, it would still have been obvious to one of ordinary skill in the art to make water absorbent resin particle and composition having the claimed properties because it appears that the references generically embrace the claimed water absorbent resin particle and composition and the person of ordinary skill in the art would have expected all embodiments of the reference to work. Applicants have not demonstrated that the differences, if any, between the claimed water absorbent resin particle and composition and the water absorbent resin particle and composition of prior art give rise to unexpected results.

8. Claims 1-6 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hatsuda et al (US 6,562,879 B1).

Hatsuda et al disclose a water absorbent resin powder and production process comprises the step of obtaining a crosslinked polymer wherein at least one monomer is selected from the group consisting of crosslinked polymers of partially neutralized polyacrylic acid (column 4, lines 28-30 and 56-58). Among them, one that has a carboxyl group is preferable and typically acrylic acid and/or a salt thereof is used as a main component. Those that have uncrosslinked water soluble content, is not greater than 20 wt% (column 5, lines 1-9). The

average particle diameter of crosslinked polymer particle is preferably 300 to 600 μm (column 16, line 1-2).

The production process further comprises the step of carrying out a surface crosslinking treatment by further mixing a surface crosslinking agent with the crosslinked polymer particles (column 10, lines 44-48). Heat treatment is carried out if necessary in the range of 80⁰C to 250⁰C (column 13, lines 16-26). Examples of surface crosslinking agents include polyhydric alcohols and polyvalent metal compounds such as hydroxides and chlorides of Zn, Ca, Mg, Al, Fe and Zr (column 10, lines 58-59; column 11, lines 26-28). These surface crosslinking agents may be used either alone or in combinations with each other (column 11, lines 34-35). The surface crosslinking agent is usually in the range of 0.005 to 10 wt. parts per 10 weight parts of crosslinked polymer (column 11, lines 66-67; column 12, line1). The water absorption capacity of the water absorbent resin powder is preferably not lower than 20 g/g, for 0.9 wt% saline under a load of 0.7 psi (column 15, lines 43-49). The absorbent structure is characterized by comprising water-absorbent resin powder and a fibrous material such as a hydrophilic fiber. The weight ratio of the water-absorbent resin powder and hydrophilic fiber is in the range of 20:80 to 90:10 (column 16, lines 42-56). The absorbent structure is interposed between a liquid permeable surface sheet and a liquid impermeable back sheet (column 17, 55-58).

The prior art is silent with respect to properties of water resin particle and the composition i.e. particle diameter of less than 850 μm and at least 106 μm ,

extraction rate of multivalent metal component and standard deviation of **claim 1**; moisture absorption blocking ratio of **claim 3**, diffusion absorbency under load of **claim 4**.

However, in light of the fact that prior art teaches / discloses essentially the same composition as that of the claimed, one of ordinary skill in the art would have a reasonable basis to believe that the water absorbent resin composition of prior art exhibits essentially the same property(ies). Since PTO cannot conduct experiments, the burden of proof is shifted to the applicants to establish an unobviousness difference. See *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (CCPA 1980).

Even if properties of the water absorbent resin particle and composition of instant claims and prior art examples are not the same, it would still have been obvious to one of ordinary skill in the art to make water absorbent resin particle and composition having the claimed properties because it appears that the references generically embrace the claimed water absorbent resin particle and composition and the person of ordinary skill in the art would have expected all embodiments of the reference to work. Applicants have not demonstrated that the differences, if any, between the claimed water absorbent resin particle and composition and the water absorbent resin particle and composition of prior art give rise to unexpected results.

9. Claims 1-4 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nakashima et al. (US 2004/0106745 A1).

Nakahima et al. disclose a water absorbent agent and production process comprising the step of blending an acid group containing water absorbent resin powder with a crosslinking agent reactable with the acid group. The resin powder has a weight average particle diameter of 300 to 600 μm wherein the ratio of fine powders having particle diameter of not larger than 150 μm is not more than 10 wt% (abstract). The particulate water-absorbing agent includes particles having particle diameter of smaller than 850 μm but not smaller than 150 μm in a ratio of not less than 90 wt% (paragraph 0021). Water soluble polymer is not more than 50 wt% (paragraph 0054). Examples of crosslinking agents include polyhydric alcohols (paragraph 0107) and polyvalent metals such as Be, Mg, Al, Fe, Mn etc (paragraph 0109).

Examples of water-absorbent resins include partially neutralized (poly)acrylic acid (paragraph 0052). The water absorbent resin shows a 30 minutes absorption capacity of not less than 31 g/g without load for a 0.90 wt% saline (paragraph 0028) and a 60 minutes absorption capacity of not less than 24 g/g under a load of 4.83 kPa for a 0.90 wt% saline (paragraph 0029).

The prior art is silent with respect to properties of water resin particle and the composition i.e. extraction rate of multivalent metal component and standard

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deviation of **claim 1**; moisture absorption blocking ratio of **claim 3**, diffusion absorbency under load of **claim 4**.

However, in light of the fact that prior art teaches / discloses essentially the same composition as that of the claimed, one of ordinary skill in the art would have a reasonable basis to believe that the water absorbent resin composition of prior art exhibits essentially the same property(ies). Since PTO cannot conduct experiments, the burden of proof is shifted to the applicants to establish an unobviousness difference. See *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (CCPA 1980).

Even if properties of the water absorbent resin particle and composition of instant claims and prior art examples are not the same, it would still have been obvious to one of ordinary skill in the art to make water absorbent resin particle and composition having the claimed properties because it appears that the references generically embrace the claimed water absorbent resin particle and composition and the person of ordinary skill in the art would have expected all embodiments of the reference to work. Applicants have not demonstrated that the differences, if any, between the claimed water absorbent resin particle and composition and the water absorbent resin particle and composition of prior art give rise to unexpected results.

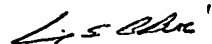
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karuna P. Reddy whose telephone number is (571) 272-6566.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Karuna P Reddy
Examiner
Art Unit 1713


LING-SUI CHOI
PRIMARY EXAMINER